More in expectation than in hope

More in expectation than in hope: a new attitude to training in clinical academic medicine

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There has never been a brighter prospect for medical research to improve the prevention, diagnosis, and management of disease. Furthermore, advances in information technology have provided unprecedented opportunities to bring stimulating and innovative teaching to medical education. However, despite the excitement of combining research and teaching with clinical practice, academic medicine is not widely viewed as an attractive career. Indeed, recruitment into clinical academic medicine has been so patchy that it is often impossible for medical schools to find suitable candidates to fill senior positions. More worrying still is a growing perception among our brightest young doctors that forging a career in academic medicine is simply not worth the enormous effort that seems to be required. Hard data on developing careers in academic medicine are frustratingly sparse, but we are all familiar with the power of adverse perception. Indeed, morale is so low in some disciplines that enthusiastic role models have all but disappeared.

Why should we bother about recruitment into academic medicine? Simply because clinical academics are vital for health care. Clinical academics play a key role in evolving and maintaining best practice through health services research, clinical trials, and teaching and training. Furthermore, even the best available health care currently fails to address a dauntingly large and stubborn burden of chronic ill health and untimely death. The public expect continued improvement, and this can only be achieved by investigating the causes of disease through scientific research, the major activity of many clinical academics. Because of this need to improve health care, I have no hesitation in arguing that clinical academic medicine must be research led. Young doctors with an interest in research should be encouraged that there has never been a greater chance to make a difference—to take on and beat seemingly intractable disease.

To identify disincentives to a career in academic medicine and bring forward practical solutions, the Academy of Medical Sciences[1] established a working party on career structure and prospects for clinical scientists in the United Kingdom, which publishes its report this week on the academy's website (www.acmedsci.ac.uk).

Summary points

- A career in academic medicine combines the excitement of research and the satisfaction of teaching with the rewards of clinical practice
- However, current approaches to training clinical academics lack clarity, flexibility, and security
- These problems can be addressed by adoption of a two phase programme after general professional training
- The first phase should incorporate a research training fellowship, ideally undertaken from the secure base of a specialist registrar post
- The second phase, for doctors committed to a research led career, should be a new "tenure track" clinician scientist scheme, mixing postdoctoral research with completion of clinical training

Disincentives to a career in academic medicine

There is encouraging evidence that junior doctors have not lost interest in research; each year there is strong competition for the 150 or so research training fellowships supported by the Medical Research Council, NHS, Wellcome Trust, and other medical charities. These applicants have recognised that a basic research training, ideally for three years and essentially full time, is a necessary prerequisite for a professional approach towards clinical research. But it is ever more apparent that these enthusiasts must overcome major disincentives (see table) before their interest in research is rewarded by a career post in clinical academic medicine. It seems to me that our brightest and most innovative trainees face far greater difficulty in finding a secure post than those who conform to conventional pathways to a career in hospital medicine, public health, or general practice.

How have these disincentives arisen? By simplifying and improving higher specialist training, the Calman reforms have inadvertently placed the clinical academic career structure, such as it is, in a bad light. This disparity should be remediable (see below).

Unfortunately, implementation of the specialist registrar grade has generated additional and more deep seated disincentives. Well meaning seniors have, through their royal colleges, inadvertently designed training requirements that can be so rigidly implemented that they seriously hamper the flexibility need to juggle an interest in research with the completion of specialist training. To overcome this problem there will need to be vigorous and enlightened action within our professional structures.

However, unblocking the "log jam" of specialist registrars in specialties in which the planned expansion of consultant numbers has failed to materialise will be more difficult still, since politicians and money are involved. But moving specialist registrars into consultant posts will be essential if we are not to condemn every research minded doctor to having to maintain interest in research undertaken before their entry into the specialist registrar grade. One good feature of the "bad old days" was that a research fellowship was often started two or three years into what would now be regarded as a specialist registrar programme; those "bitten by the research bug" did not have five or six years' training to complete before achieving the clinical independence necessary to become a clinical academic. Indeed, the Calman scheme was intended to allow free movement between periods of research and clinical training. However, the "log jam" pressurises junior doctors to enhance their competitiveness for specialist registrar posts by seeking research training fellowships when they are senior house officers uncertain of either their choice of career or the clinical problems that should drive their research.

Proposed new career structure for clinical academic medicine

Medical school (lasting 5-7.5 years)

- Possibly with BSc, BMedSci, or PhD

House officer (1 year) and senior house officer (2 years)

First phase, exploiting flexibility of specialist registrar post (lasting 3-5 years)*

- Up to 2 years' specialist registrar training, much of it before a research training fellowship
- Direct entry to specialist registrar grade with national training number *or*
  Locum appointment for training in senior house officers' "academic access scheme"
- 3 year research training fellowship (with national training number)
- Smooth return to NHS career if desired

Second phase: clinician scientist post

- Clinician scientist national training number
- Flexible mingling with specialist registrar training to gain certificate of completion of specialist training (CCST) and 2-3 years' postdoctoral training
- Viewed as on tenure track by medical school and paid on consultant scale once CCST obtained
- Leave grade to take up senior academic position with rolling tenure or senior research fellowship

*First phase could be bypassed by trainees with MB/PhD, but clinician scientist post might need to accommodate 5 years' specialist registrar training
†Clinical lectureship with approved honorary specialist registrar status and job plan allowing protected academic time would be an alternative but may have less flexibility

Disincentives to a career in clinical academic medicine and potential solutions

Disincentives	Solutions
Major issues	
Lack of career structure	Two stage career track (see box)
Long, insecure training	Clinician scientist posts that are on "tenure track" and contribute towards achieving certificate of completion of specialist training (CCST)
Lack of flexibility	Clinician scientist posts supernumerary to specialist registrar positions
Pressure to start research too early	"Academic access scheme" to give senior house officers experience of research (comparable to locum appointment for training)
Lesser issues	
Lack of undergraduate exposure to research	Undergraduate schemes to study for BSc, BMedSci, or MB/PhD degrees
Lack of infrastructure and role models	Academic access scheme to prepare senior house officers for research training fellowships Secondment of trainees to other specialties for research experience
Poor remuneration	Seek parity with contemporaries

However, it would be wrong to attribute disincentives to the Calman reforms alone, and the table lists others. In particular, I feel that universities and their medical schools have had difficulty in coming to grips with career development for clinical academics. There is good evidence that a major concern for those undertaking research training fellowships is whether they will be able to attract independent research funding in the future.[2] Innovative funding bodies such as the MRC and Wellcome Trust have responded to a clear need for young clinical academics to obtain postdoctoral research training. However, universities have been slow to recognise this: they expect an individual holding a clinical lectureship to be an independent investigator, equivalent to lecturers in other disciplines, and many clinical senior lecturers are appointed with little more research experience than that offered by a two year MD degree.

Answers to the problems

The Academy of Medical Sciences working party, to which I contribute, has consulted widely to find solutions to the current problems in recruitment into clinical academic medicine (see box), and the Royal College of Physicians of London has made similar proposals.[3] Much could be gained by establishing a simpler career development grade. Our key proposal is that trainees who have completed a research fellowship and believe themselves to be committed to a career in academic medicine should be able to compete for clinician scientist positions of about five years in duration. Clinician scientists would, in a flexible manner, mix and match postdoctoral research training with the first class specialist registrar clinical training necessary to complete a programme leading to the certificate of completion of specialist training (CCST).

Crucially, we propose that these positions should be regarded as "tenure track": host medical schools would be wise to ensure that they had a senior post available to retain such talented individuals as they completed their posts. About 25 trainees a year are already funded as clinician scientists by the MRC, the NHS, and the research charities, and we propose that each of our medical schools should "buy in" to the

scheme by establishing one such post each year, either to develop research strengths or to anticipate retirement of key staff. However, a key concept is that clinician scientists should be allowed to concentrate on combining clinical training with research training and that universities should recognise the long term gain of allowing such individuals to undertake periods of research training away from base.

How would clinical training in the clinician scientist grade be managed? The working party has been impressed by the willingness of postgraduate deans and royal colleges to find the flexibility implicit in the Calman proposals. However, the greatest flexibility would arise if clinician scientists were regarded as a nationally managed resource supernumerary to the specialist registrar grade. We have found widespread support for award of a separate tranche of around 50 clinician scientist national training numbers each year. This would ensure that clinician scientists do not frustrate manpower planning by holding national training numbers for about 10 years (see below) and would enable postgraduate deans to find training placements close to the research base—a necessary privilege, but one that becomes easier as overcrowded specialties lose national training numbers. The grade would be overseen by a national academic advisory committee, which might become intercollegiate if successfully piloted in a particular college. This committee would ensure that the appointee and job plan are appropriate to a clinician scientist national training number and then liaise with the trainee, postgraduate dean, academic sponsor, clinical training director, and the relevant royal college specialist advisory committee (no small task) to devise a prospective, revisable, personalised training programme toward award of the CCST by the relevant specialist advisory committee. Annual assessments would be made as in the specialist registrar grade.

How would the clinician scientist grade be entered? The working party hopes that ways can be found to enable doctors to secure specialist registrar positions direct from a senior house officer post, so that a doctoral research fellowship could be undertaken by taking time out (one year of which is usually accepted as part of the clinical training requirements). Doctors who decide that an academic career is not for them could simply return to complete specialist registrar training. Many postdoctoral trainees will find an ideal opportunity to consolidate their interests in clinical medicine and research by moving into a clinical lectureship with a job plan providing protected academic time, using this as a base from which to launch their career. However, those who have prospered in their research training and feel committed to a research led career in academic medicine would seek the extra flexibility offered by clinician scientist posts. Some applicants, particularly those undertaking MB/PhD programmes at undergraduate level but also some senior house officers determined to undertake research before a specialist registrar post, would meet the academic criteria for clinician scientist status. Therefore, there may be a need for clinician scientist posts to be long enough (up to seven years) to accommodate a full specialist registrar programme and postdoctoral research.

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We need a new approach to training to make careers in research as attractive as those in conventional clinical practice

However, unless growing enthusiasm for competency based assessment of clinical training does secure a shortening of clinical training, it seems clear that a senior house officer interested in academic medicine might face up to 10 years of clinical and research training. Nevertheless, at least the second half of this would be spent in a "tenure track" clinician scientist position (which would need an extended pay scale as there are only nine points on the specialist registrar scale, although many individuals might obtain CCST during the programme and therefore qualify for consultant grade pay). Furthermore, trainees could be sure that they would secure first class training in their specialty and their research. Interestingly, holders of research training fellowships seem less worried about the length of their training than about their ability to attract research funding in the future.[2]

Finally, how should a senior house officer with an interest in research who is unable to break into the specialist registrar grade make a start? Two different situations have to be considered. Firstly, we need to find a way for academically minded senior house officers to "taste" higher specialist training in overcrowded specialties, which must allow a "trickle through" of academics. Secondly, we need to prepare and encourage senior house officers in specialties that do not have strong traditions of obtaining competitive research training fellowships or attracting doctors with BSc or BMedSci undergraduate research experience. The funding bodies are keen to do this: the MRC has teamed up with some royal colleges to jointly fund and target fellowships to those in "shortage" specialties, and the Wellcome Trust offers one year "entry level" fellowships to provide young doctors with research experience sufficient to be competitive for substantive research training fellowship awards.

To date, however, postgraduate deans and academic sponsors have not had the means to offer promising senior house officers clinical training that could be registered (similar to a one year locum appointment for training, which can count towards CCST requirements) coupled with protected time in which to undertake research and develop a competitive application for a research training fellowship. The working party would like to see the NHS ensure that it has the staff to fulfil its role in research and development by creating

an "academic access scheme" for promising senior house officers. At a minimum, this might be a one year locum appointment for training that would include 20% protected time to develop a research interest with an academic sponsor. A national pool of about 100 such posts would give postgraduate deans the flexibility to look after senior house officers unable to gain direct entry to specialist registrar schemes while encouraging the growth of research in specialties with little academic activity and providing an academic trickle into blocked specialties. Funds for the scheme could be obtained by rerouting monies "freed up" by loss of national training numbers.

Conclusions

I believe that academic medicine can again become an attractive career choice for inquisitive young doctors. There seems to be a real will among clinical academics, university medical schools, postgraduate deans, and the royal colleges to reorganise and re-deploy so that serious research training can be interdigitated with first class clinical training. Much can be done from existing resources, so it is to be hoped that support will come from the relevant government departments. But everything depends on the enthusiasm and the patience of the young.

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Interface between university and medical school: the way ahead?

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In the midst of the very public debate on health, the interface between university and medical school remains largely hidden. It is, however, an important influence not only on academic activity and resources but increasingly on commercial interests. The changing roles and responsibilities of medical schools affect many aspects of health, education, and regional development. The ways in which medical schools respond to different challenges should be understood if there is to be agreement on the opportunities and threats facing modern medical education.

Summary points

Medical education comprises a decreasing proportion of the workload of medical schools

Medical schools have close links with the health departments, but links with the funding councils and departments of education may be less robust, and funding streams are complex and poorly understood

Research interests of medical schools and their parent university may take precedence over teaching commitments and clinical duties

Curricular reform has been stimulated by the General Medical Council since graduation is linked to provisional GMC registration, and the public and profession must agree on standards expected at graduation

Medical schools

We all know what they are, but a succinct definition is now elusive. Of course, a medical school educates undergraduate medical students, but that role is decreasing as medical education moves with patients to the community and primary care. Indeed, colleagues in the NHS now undertake at least 70% of the clinical teaching and increasingly participate in planning the curriculum and assessment. Given the considerable diversity of arrangements adopted by different universities, the only other features medical schools have in common are a robust research base, clinical academic staff, and public interest. Many have substantial numbers of undergraduate and postgraduate students in disciplines other than medicine.

A medical school is an integral part of its parent university and is not autonomous. It is, however, often some distance from the main campus and perceived by academic colleagues as remote. Because of the strategically important position it occupies between the NHS and the university, the organisational structure and funding arrangements are complex and are often only imperfectly appreciated. Medical schools enjoy close links with the health departments, whereas the education departments responsible through the funding councils for the universities generally seem less involved.

Universities

These too have changed markedly in recent years as the higher education system expanded. With the abolition of the distinction between universities and